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09/900,546	07/06/2001	Irene Spitsberg	13DV13486	5045

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EXAMINER

MEEKS, TIMOTHY HOWARD

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/900,546

Applicant(s)

SPITSBERG, IRENE

Examiner

Timothy H. Meeks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-19 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Election/Restrictions***

Applicant's election with traverse of claims 1-18 in Paper No. 10 is acknowledged. The traversal is on the ground(s) that the examiner's proposed materially different method for producing the product is the same as the claimed method because using oxidizers other than oxygen will inherently involve providing a partial pressure of oxygen since the other oxidizers must decompose to form oxygen. This is not found persuasive because use of other oxidizers would not inherently require providing a partial pressure of oxygen. For example, the bond coat could be treated in a hydrogen peroxide solution to provide the alumina layer which would not involve evolution of a partial pressure of oxygen.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Objections***

Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 7 fails to further limit claim 2 as claim 2 requires a single phase platinum aluminide be formed this inherently necessitates the "sufficient time and temperature to form a single phase platinum aluminide" limitation of claim 7.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Grit blasting the bond coat which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

It appears that grit blasting the bond coat to provide the described surface is essential to the practice of the invention. This is explicitly stated at paragraph 0023 where it is stated ".....a chemical treatment of the platinum aluminide of the the coating of the present invention did not produce the beneficial results obtained with the grit-blasting techniques **required** by the present invention. Grit blasting the single phase diffusion platinum aluminide coating is an **essential** element in the success of the thermal barrier coating of the present invention." (emphasis added). Furthermore, the results of Example 2 (paragraphs 0030 and 0031) show that the grit blasting is essential to achieve the desired effects.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-18 are indefinite because no units are provided for the recited range of surface finish  $R_a$ , hence it is impossible to ascertain the metes and bounds of the numerical range. 32 microinches  $R_a$  is quite different from 32 microns  $R_a$ , for example. For the purposes of applying

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prior art, it will be considered that Ra values of any unit falling in the claimed range will meet the limitations of the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Warnes et al.

(6,472,018)

Warnes discloses the limitations of claim 1 as follows:

- “providing a gas turbine.....high temperatures” ( col. 1, lines 10-12);
- “applying a thin layer.....preselected time; then” (col. 3, line 48 to col. 4, line 10, please note that the MDC-150L is a single phase platinum aluminide coating as described in USP 5,658,614 which is incorporated by reference into Warnes);
- “providing the single phase.....gradients of nickel, aluminum and platinum” (col. 4, lines 20-35 as well as col. 5, lines 15-55 describing media bowl polishing, vapor honing, and grit blasting of the coating which processes would remove any oxides and provide a clean surface. As shown at col. 4, lines 20-35, the PtAl coating of Warnes does not include “local gradients of nickel....”).
- “grit blasting the single phase platinum aluminide” (col. 5, lines 38-45); and

- “preoxidizing the single phase platinum aluminide.....thin layer of pure alumina”  
(col. 5, lines 53-55; col. 7, lines 8-67).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 6-11, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warnes et al. (6,472,018) in view of EP 969117

Warnes discloses the following limitations of claim 2:

- “providing a gas turbine.....high temperatures” ( col. 1, lines 10-12);
- “applying a thin layer.....preselected time; then” (col. 3, line 48 to col. 4, line 10,  
please note that the MDC-150L is a single phase platinum aluminide coating as described  
in USP 5,658,614 which is incorporated by reference into Warnes);
- “grit blasting the single phase platinum aluminide using a grit....preselected pressure”  
(col. 5, lines 38-45); and
- preoxidizing the single phase platinum aluminide.....thin layer of pure alumina” (col.  
5, lines 53-55; col. 7, lines 8-67).

Warnes does not explicitly disclose that the grit blasting is performed “for a time sufficient to achieve a surface finish of between about 32 R<sub>a</sub> and 63 R<sub>a</sub>”. However, because EP 969117 discloses at paragraphs 0016 and 0019 that grit blasting a PtAl bond coat prior to oxidizing to

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form an alumina scale thereon with alumina particles of 80 mesh or more coarse (36, 54, and 80 mesh exemplified) and pressures of 40, 70 and 60 psi forms a surface roughness of 50 to 60 microinches  $R_a$  and unexpectedly improves adhesion of the ceramic coating to the bond coat, it would have been obvious to have grit blasted the PtAl bond coat of Warnes with the particle sizes, pressures and to the roughnesses disclosed by EP 969117 because doing so would have been expected to improve adherence of the ceramic layer and bond coat.

The limitations of claims 3 and 4 are disclosed at col. 3, lines 33-35 of Warnes.

The limitations of claims 6 and 7 are disclosed at col. 3, line 50 to col. 4, line 5 of Warnes.

Use of the grit sizes and pressures of claims 8-11 is disclosed in the improved grit blasting process of EP 969117 as shown above.

Use of heating temperatures to form the alumina scale of claims 14-17 are disclosed at col. 7, lines 7-55 of Warnes. It is noted that most times for full transformation are less than an hour and begin in less time with higher temperature (see Table 1). Clearly one would seek to minimize time need for this process step so ramping to the desired heating temperature in the least amount of time possible would have been obvious to minimize process time.

The claim 18 limitation is disclosed at col. 7, lines 50-60.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warnes in view EP 969117 as applied above, and further in view of Vakil (6,495,271)

Warnes discloses electroplating to deposit the thin Pt layer rather than CVD. However, because Vakil discloses at col. 3, lines 35-43 that both electroplating and CVD are effective methods for depositing a thin layer of Pt on a nickel based superalloy, it would have been

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obvious to use either electroplating or CVD to deposit the Pt layer as both methods are art-recognized equivalents for performing said step and hence one would expect to achieve equivalent results using either method.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warnes in view EP 969117 as applied above, and further in view of Murphy (5,716,720)

Warnes is silent as to the partial pressure of oxygen provided but discloses that the formation of the alumina was performed in a similar process as to that disclosed in Murphy (col. 5, lines 53-55). Murphy discloses that a low partial pressure oxygen atmosphere is used, such as  $10^{-4}$  torr (col. 5, lines 10-15) to form the alumina scale, which falls within the claimed ranges. As such it would have been obvious to use this partial pressure of oxygen with a reasonable expectation of its being operable.

Claims 1-4 and 6-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 969117 in view of Basta et al. (5,658,614) and Murphy (5,716,720).

EP 969117 discloses the following limitations of claims 1 and 2:

- "providing a gas turbine.....high temperatures" (0013 and 0015);
- "applying a thin layer .....the component" (0019);
- "exposing the thin layer of platinum to a source of aluminum for a preselected time (0019);
- "grit blasting" the PtAl coating "using a grit of preselected..... $R_a$ ; then"(0019);



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- “providing” the PtAl coating “with a clean .....gradients of nickel, aluminum and platinum” (0019 in that the grit blasting of the PtAl is the same as that claimed and disclosed by applicants to achieve a “clean, uniform surface free of oxides and local gradients.....” and hence would inherently provide the PtAl with these features); and
- “preoxidizing the” PtAl coating by heating it in a high temperature treatment specifically performed for this purpose to form a thin layer of pure alumina) (0016, oxidizing the clean PtAl that was grit blasted would provide pure alumina).

EP 969117 does not disclose that a single phase PtAl layer is formed or that the heat treatment of the aluminide to form alumina is performed by “heating the component in a preselected partial pressure of oxygen .....at a preslected rate”. However, because Basta discloses at col. 2, lines 1-20 that single phase PtAl bond coats have advantages over two phase PtAl bond coats of not having metastable phase assemblages and thicknesses, being sensitive to thermal fatigue cracking, or rumpling and Murphy discloses that heat treating single phase PtAl bond coats under the claimed conditions is effective for providing the stable alumina scale desired in EP 969117 (col. 5, lines 5-25 and col. 6, lines 15-25), it would have been obvious to have provided a single phase PtAl in the manner described by Basta to achieve the disclosed advantages thereof and to heat treat to form the alumina under the conditions of Murphy because doing so would have been expected to be effective for providing said alumina layer.

The limitations of the dependent claims are disclosed as follows:

- Claims 3 and 4 (EP 969117 at 0013 and 0015);
- Claims 6 and 7 (Basta at col. 5, line 50 to col. 6, line 15);
- Claims 8-11 (EP 969117 at 0019);

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- Claims 12-17 (Murphy at sections cited above, please note that minimizing time to reach the heat treatment temperature would have been obvious for the reasons set forth above); and
- Claim 18 (EP 969117 at 0019).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 969117 in view of Basta et al. (5,658,614) and Murphy (5,716,720) as applied above and further in view of Vakil (6,495,271)

Basta discloses electroplating to deposit the thin Pt layer rather than CVD. However, because Vakil discloses at col. 3, lines 35-43 that both electroplating and CVD are effective methods for depositing a thin layer of Pt on a nickel based superalloy, it would have been obvious to use either electroplating or CVD to deposit the Pt layer as both methods are art-recognized equivalents for performing said step and hence one would expect to achieve equivalent results using either method.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

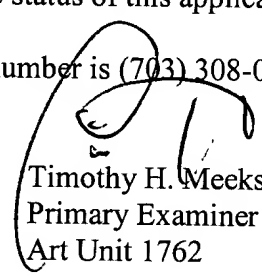
Claims 1-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6,565,672. Although the conflicting claims are not identical, they are not patentably distinct from each other because they differ only in scope.

Claims 1-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 6,557,067. Although the conflicting claims are not identical, they are not patentably distinct from each other because they differ only in scope.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon., Tues., Thurs.(6-6:30), Fri.(6:30-10:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Timothy H. Meeks  
Primary Examiner  
Art Unit 1762

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June 19, 2003